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ABSTRACT

This paper outlines a procedure for helping teachers in other fields to become effective technical writing teachers. The seven steps in the process include becoming immersed in the topic (reading intensively on the subject and attending an orientation workshop for beginning technical writing teachers), developing a positive attitude toward technical writing, seeking out people that can help organize an instructional approach, using students as planners and evaluators, developing methods for course evaluation, spreading the good news about success in technical writing, and becoming a resource person for others when they begin to teach technical writing. This "retooling" process is estimated to take one and one-half years to complete. (An evaluation form for short, informal reports is attached.) (RL)

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TEACH TECHNICAL WRITING? HOW?
A RE-TOOLING MODEL
FOR BEGINNING TECHNICAL WRITING TEACHERS

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At the University of Pittsburgh at Johnstown, the number of students enrolling in the Engineering Technology Program and the Business-Economics Program has mushroomed over the past few years. Enrollments in the humanities, particularly in English and foreign languages, on the other hand, have declined sharply. As a result of this growth in technical and business fields and the decline in the humanities, the need for technical writing teachers will be increasing, and the need for traditional writing and literature instructors will be shrinking.

Consequently, my division chairperson approached me, a German professor, and asked if I would be interested in teaching a number of technical writing classes. In the ensuing weeks, I was involved in an identity crisis of major proportions. How can a hard working German professor (Not even an English instructor!) teach technical writing? After all, I spent so many years studying the language and literature of Goethe, Schiller, Kafka and Mann. In addition, I truly love what I am teaching! My classes have faired rather well compared with other German programs at surrounding schools; however, the number of language students has declined. Will similar enrollment drops justify my presence as a full-time professor in the near future? With the numbers game being so widely discussed and played, perhaps my enrollments in German would be insufficient in the near future. A philosophical question also perplexes me. Is technical writing a humanistic pursuit? Anyway, how could I handle the technical terminology involved? These questions and many more whirled through my head for many weeks.

The challenge of a new area of exploration, possible job security, and the assurance that I would still be teaching mostly German, however, enticed me to take at least a closer look at this often maligned area known as technical writing. With so many questions unanswered and uncertainty abounding, I remembered what Young, Becker and Pike state in their book Rhetoric: Discovery and Change: "The existence of a problem does indicate inadequacies of some sort, but it is more profitably seen as an opportunity to be seized, as a state from which growth and productive change can come. Uneasiness is the seed from which subsequent investigation grows; ignore it and the process of inquiry may never begin."[1]

My closer look at teaching technical writing, however, must be systematic and well organized. Prior experience in developing courses and programs has shown me that I am much more effective if I spend considerable time planning an appropriate procedure. This approach at the "how to" is called a process goal. Seager, in a correspondence exercise, defines a process goal as "an

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objective that can be described as some level of mastery of the learning processes themselves. These goals differ from content goals, which are objectives that can be described as some level of mastery of content, such as the acquisition of facts, principles, hypotheses, and opinions."[2] Seager continues by maintaining that mastery of processes ". . . is more complete and is achieved more rapidly when process goals are an explicit part of the teacher's intentions rather than when they are left as incidental learning."[3]

With the idea of process in mind and the fact that it could help others in my situation, I derived a re-tooling procedure that would carry me and perhaps others from the beginning technical writing teacher stage to a position from which I could also train others to teach technical writing. The re-tooling model consists of seven stages: (1) immersion, (2) change of attitude, (3) developing "helping-hand" relationships, (4) students as planners and evaluators, (5) course evaluation, (6) "spreading the good news," and (7) the teacher's teacher. Although the stages follow the progression indicated, there is overlap between many of the areas..

Immersion

This stage might be described as an introduction to the world of technical writing. It is at this point that we begin to search for answers to the questions that have burdened us recently. This search should begin with intensive reading. Blackman in "A Bibliography for Beginning Teachers of Technical Writing" suggests that the beginning technical writing teacher should start by reading the journal Teaching of Technical Writing and the Journal of Technical Writing and Communication.[4] In addition, Whitburn suggests reading College Composition and Communication and the ABCA Bulletin.[5] In the area of textbooks, I would recommend Rhetoric: Discovery and Change by Young, Becker, and Pike as a starting point in modern rhetorical theory. Another book that reflects similar ideas is the text Designing Technical Reports: Writing for Audiences in Organizations by Mathes and Stevenson. I found these texts to be particularly beneficial at the beginning of my information search. I suggest that you contact Carolyn Blackman, Department of Language Literature and Communication, Rennselaer Polytechnic Institute, Troy, New York for a copy of her valuable bibliography.

After the immersion into the literature has begun, enrolling in an institute, workshop or conference designed for beginning technical writing teachers is the next step. In most cases instructors should have little difficulty obtaining funds from their departments or divisions to defray expenses for attending such a conference. Among the possibilities are MIT's Communicating Technical Information, the University of Michigan's Teaching Technical and Professional Writing, or perhaps Rennselaer Polytechnic Institute's Technical Writers' Institute. I attended the Teaching Technical and Professional Writing conference this past August at the University of Michigan and found this experience to be invigorating and invaluable. Again, Blackman's bibliography lists additional conferences, meetings and institutes on technical writing that are held throughout the year.

Finally, the technical writing teacher should consider joining at least one of the professional organizations dealing with technical communication. Some suggestions include the American Business Communication Association, the American

Society for Engineering Education, the American Association of Technical Writing or the National Council of Teachers of English. Perhaps many of you presently belong to some of these organizations but have never spent much time with their journals or attending conferences dealing with aspects of technical writing. Now is the time to start!

Change of Attitude

During the immersion phase into the field of technical writing, many of you will have to make a basic change in your attitude toward this type of writing. This stage marks perhaps the most critical aspect of re-tooling. In many instances you are being asked to modify your initial beliefs that there is something debasing, inferior or impure about technical writing. This modification is difficult since most graduate studies glorify creative writing and literature and place technical writing on the lowest rung of the ladder or shun it completely. Now you must go against a tradition that was perhaps narrow or incomplete and convince yourself that the communication needs of the working world are real and legitimate. It is by facing and meeting the communication needs of the world of work that we can have the greatest humanistic impact. MacIntosh feels that "to take perverse pride in forswearing the world" is a medieval attitude. Instead you must "walk down main street with open minds, to hear the world's ideas of its language needs . . ."[6] By recognizing the legitimate communication needs of the world, I feel that we do not bastardize our writing ideals but expand them to include a rhetoric that is a product of our times. We would agree that informative writing is communication; persuasive writing is communication; and descriptive writing is communication. We would also agree that such communication deserves our time and scrutiny in writing classes. Why would technical writing which incorporates facets of these types of writing not deserve our attention in the classroom? Harris defines it as "objective rather than subjective . . . quantitative rather than . . . qualitative. It places great emphasis on adaptation of the material to suit an intended reader. It utilizes freely such communication devices as heading, captions, informational outlines . . ., etc. Its prime parameter is clarity."[7] Technical writing is communication; it needs to be taught. If we cannot accept the idea that technical writing is communication that needs to be taught just as other forms are taught, we may very well doom our chances of success.

This attitude change can be facilitated by reviewing the related literature (especially F. H. MacIntosh's "Teaching Writing for the World's Work"), attending workshops and classes dealing with technical writing, assisting a colleague in teaching such a course, or utilizing technical writing elements in your present writing courses.

"Helping-hand" Relationships

Once you feel firmly committed to your new role as a technical writing teacher, you should seek the support of individuals to participate in "helping-hand" relationships. The purpose of these relationships is to exchange information concerning course content, methodology, evaluation procedures, etc. You should contact individuals who display enthusiasm for teaching technical writing, who teach technical courses, and who are working in industry.

The initial contact should be made with a colleague who is presently teaching a technical writing class. This teacher can act as a "sounding board" for your ideas, lend a shoulder to cry on, allow you to observe his or her class, be a partner in a team teaching situation, and be helpful in making additional contacts. I have found that such an individual is overjoyed with the prospects of having a colleague interested in what he or she is doing. More often than not, this person has been the recipient of slurs such as "not humanistic writing," "Who would lower themselves to teach that?," "Is that all you teach," or the saddest of all "Don't you have a literature specialty?" This list could continue indefinitely in many cases. I have found that nobody is guarding the treasures of technical writing. They are there for all who want them; technical writing teachers are very willing to help you obtain them.

While working with a colleague, you should also pursue a "helping-hand" relationship with faculty members in the engineering and/or business fields. Winkler recommends that you start at the top with the dean or department chairperson. A mere telephone call or visit to their offices is generally all that is needed. If this individual is unable or unwilling to assist you, he or she can point out other teachers with a keen interest in improving the technical communication skills of their students. You can enhance your image with these technical teachers by attending departmental and curriculum meetings to show that you have a genuine desire to give their students a rewarding writing experience and most importantly that you are willing to bridge the chasm that often exists between engineering/business departments and the humanities. Primary targets for these "helping-hand" relationships are cooperative education coordinators, design professors, or directors of senior projects. These individuals can be valuable resources, assist you with technical terminology difficulties, team teach a course with you, or act as evaluators of student reports.[8]

In addition to departmental or technical contacts, it is beneficial to develop "helping-hand" relationships with people in governmental agencies and business. The primary objectives of these contacts would be "real" communications for classroom use, actual experience with the effectiveness of audience analysis, and future industrial and governmental contacts. Stevenson suggests a procedure that might be used in initiating and carrying out such relationships: First, send a letter of introduction to personnel managers explaining your purpose for working with the firm. Select dissimilar companies and a range of communications so that you can obtain a better mix of reports for classroom use and a proper perspective of the working world. Once the documents are chosen, approach the writer and determine the purpose of the report and the intended audience. Then discuss the report with the intended audience to see if the writing was effective and directed to the proper individuals. A word of caution, however, is necessary whenever visiting companies. Be tactful whenever dealing with members of an organization. Your purpose is to gain sample reports, develop skill in audience analysis, and make future contacts with resource people, not to reform and infuriate the members of the organization.[9]

Students as Planners and Evaluators

The fourth step in the re-tooling model involves the use of technical students in the design, implementation and evaluation of the course. In order to know the needs, levels of competence, and aspirations of students, it is impor-

tant to involve them in planning sessions, as guest speakers, and in conferences. Past experience with student input in designing individualized programs has been most rewarding. Only recently have some teachers realized that careful and systematic involvement of students in preparing, implementing, and evaluating courses and programs is a tremendous asset.

First, students should participate in a planning committee. This planning committee should consist of students who have completed a technical writing course, who are working in industry while attending classes, or who have graduated and are working full-time. It is hoped that these resources will enable you to design learning experiences that reflect professional needs and the realities of the working world. This committee will deal with stating student needs and desires in technical writing, listing misconceptions about the working world that are prevalent among technical students, assisting in the selection of a textbook, dividing the chosen textbook(s) into manageable units, writing behavioral or performance objectives for the course (Robert F. Mager's Preparing Instructional Objectives is a recommended guide.), and locating supplemental materials for each objective. A list of possible students for this committee can be obtained from your "helping-hand" contacts.

Recent graduates and former technical writing students should also be used as resource people who visit classes to relate personal experiences in the business/engineering field. These students are powerful resources when dealing with difficulties that students face as they enter the working world. In addition, they can assist you in setting up simulations that reflect actual situations in different organizations. They can be a tremendous help in keeping you abreast of current trends. In addition, outstanding students who have experience in the field might be used as outside evaluators of reports. Again a list of these individuals can be obtained from your "helping-hand" contacts.

Furthermore, students enrolled in the class should participate in the design, implementation and evaluation of the course. First, students should have group conferences with you to offer suggestions on procedures, simulations, and speakers. At this time they can help to evaluate previous guest speakers and activities. These sessions should be voluntary and held in your office if possible. The atmosphere must be relaxed and not threatening if the sessions are to be valuable. Secondly, students should be able to meet with you on a one-to-one basis to discuss difficulties encountered while writing their reports. This tutorial environment gives you the opportunity to establish a "helping-hand" relationship also with your students. These individual conferences might be fifteen minutes long. I also suggest that a number of class periods be given up so that the tutorials can take place. My own experience has shown that this time is wisely spent. Many students need this personal touch in order to progress satisfactorily. Finally, students should be used as evaluators of memos and reports. A helpful instrument in this process would include using the -1 to +1 scale developed by Mathes and Stevenson at the University of Michigan. (See Appendix A) This instrument lists a series of questions about various parts of a report; teacher and student evaluate a part of the report in relation to the question and rate the success of the report on a scale from -1 to +1. Mathes and Stevenson have found that technical writing teachers, evaluators from industry, and students evaluate reports at remarkably close levels. Stevenson admits that students evaluate higher on the initial writing assignments, but this dif-

ference virtually disappears after the second report.[10] I have achieved similar results in my own experiments with evaluations by students. Similar instruments can easily be designed by you and other technical writing colleagues. I have found that students will not let you down.

Course Evaluation

A fifth stage in the re-tooling procedure involves a course evaluation by students and colleagues. This evaluation should be objective if possible and include evaluation of student competencies on various reports and an evaluation of their attitudes toward the learning environment. It would be helpful if a standardized instrument that measures student achievement in technical writing were available. To my knowledge, such an instrument does not exist. You should take the initiative to design an instrument that would make a final check to see if students know and can use the parts of the statement of purpose, and the basic components of the formal report. Such an instrument would give you an idea how well these students compare with previous classes or with classes to come. Student attitudes toward the learning environment could be measured by a semantic differential or other attitude scales that exist. Evaluation by colleagues might be carried out by classroom observations. Although such visitations may be nerve-racking, the feedback would be invaluable.

These evaluations or others that you design should be carried out so that you can offer evidence to a department chairperson, a status committee, or other decision-makers that your hard work has earned a raise, a promotion, or retention on the teaching staff. Accountability in education is here! We must devise ways to protect ourselves! I believe that evaluations by students and colleagues are our most powerful weapons available.

"Spreading the Good News"

Now that you have completed your first course in technical writing and have favorable evaluations in your pocket, spread the good news about the course to your "helping-hand" contacts, your department chairperson (especially the one who suggested that you teach technical writing), and other interested parties. You might inform them of the results of the course by memo, by a telephone conversation or by meeting with them in their offices. I feel that the latter is most effective since questions can readily be answered and your enthusiasm for your work will be readily visible. Your remarks should include the objectives for the course, an explanation of the methods used to achieve these objectives, the instruments used for evaluating these goals, and the results of the evaluation. Such reports are appreciated by concerned individuals and can again pay off when raises or promotions are being considered.

A Teacher's Teacher

The final step involves you in the role of a teacher's teacher. This simply means that you become the "helping-hand" colleague for others who are faced with making a decision about teaching technical writing. The valuable experiences that you had in teaching technical writing and the process that assisted you, namely the re-tooling model, should be available to others. This can be accomplished by conducting a series of workshop sessions with those interested in

teaching technical writing. A general memo announcing the workshop should be sent to members of the English department and perhaps to foreign language teachers. This memo should set a time for the sessions, the room where you will meet, the objectives of the sessions, and some general comments indicating your enthusiasm for teaching technical writing. These sessions should discuss in detail the seven stages in the re-tooling model. Such "in house" training sessions might last from four to six weeks with a session lasting about one to two hours. I know that these sessions are helpful. They assisted me in getting started on a career as a technical writing teacher.

The re-tooling model outlined above is an attempt to offer the beginning technical writing teacher a procedure that can carry one from the uninformed stage to a level where this beginner can become a trainer. I have followed variations of this model in developing courses and programs at the University of Pittsburgh at Johnstown and have had great success. This re-tooling procedure should take about one and a half years to complete.

FOOTNOTES

[1]Richard E. Young, Alton L. Becker, and Kenneth L. Pike, Rhetoric: Discovery and Change (New York: Harcourt, Brace and World, Inc., 1970), p. 91.

[2]G. Bradley Seager, "Correspondence Exercise 3C," University of Pittsburgh, 1971, p. 1. (Mimeographed.)

[3]Seager, p. 1.

[4]Carolyn M. Blackman, "A Bibliography of Resources for Beginning Teachers of Technical Writing" (paper presented at the College Conference on Composition & Communication, Kansas City, MO, March 31-April 1, 1977), p. 12.

[5]Merrill Whitburn, "Technical Communication: An Unexplored Area for English," Association of Departments of English Bulletin, (May, 1975), p. 14.

[6]F. H. MacIntosh, "Teaching Writing for the World's Work" (paper presented at the 1973 Southeastern Conference for English in the Two-Year College, Jacksonville, Florida, Feb. 16, 1973), p. 6.

[7]John Sterling Harris, "So You're Going to Teach Technical Writing: A Primer for Beginners," The Technical Writing Teacher, II, No. 1, (Fall, 1974), p. 2.

[8]Victoria Winkler, "Technical Communication: A Cooperative Venture," lecture delivered at the Teaching Technical and Professional Writing Conference, University of Michigan, Ann Arbor, MI (August 10, 1977).

[9]Dwight Stevenson, lecture delivered at the Teaching Technical and Professional Writing Conference, University of Michigan, Ann Arbor, MI (August 8-12, 1977).

[10]Statistics provided by J. C. Mathes and Dwight Stevenson at the Teaching Technical and Professional Writing Conference, University of Michigan, Ann Arbor, MI (August 8-12, 1977).

APPENDIX A

Writer: _____ Evaluator: _____

EVALUATION FORM FOR SHORT INFORMAL REPORTS

1. Heading: The heading should provide sufficient information for readers to understand the organizational roles and relationships of the source and audiences. It should also define the topic (and purpose) of the report and fix the report in time by date and references. Does it?

[ ] [ ] [ ] [ ] [ ]
-1 0 +1

2. Foreword: The opening paragraph or group of sentences should identify the specific issue of organizational concern and consequent technical investigation which the report addresses or responds to. It should explicitly state the writer's reason for writing (i.e., rhetorical purpose). Does it?

[ ] [ ] [ ] [ ] [ ]
-1 0 +1

3. Summary of Conclusions and Recommendations: The second paragraph or group of sentences should summarize how the report is a response to the issue and technical investigation. It focuses on the important information contained in the particulars that follow. Does it?

[ ] [ ] [ ] [ ] [ ]
-1 0 +1

4. Particular Information: The following paragraphs or groups of sentences should provide details of the procedures and results necessary to substantiate and explain the summary information. Do they?

[ ] [ ] [ ] [ ] [ ]
-1 0 +1

5. Formatting: The format should complement and clarify the content of the report by use of horizontal and vertical white space, headings, and numbers. Does it?

[ ] [ ] [ ] [ ] [ ]
-1 0 +1

Overall Effectiveness: In sum, is this report effective in terms of audience and purpose?

[ ] [ ] [ ] [ ] [ ]
-1 0 +1

Courtesy of J. C. Mathes and Dwight W. Stevenson, Humanities Department, College of Engineering, University of Michigan, Ann Arbor, MI 48109.